

Appl. No. 10/759,059
Amendment dated: November 13, 2007
Reply to OA of: August 22, 2007

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1(currently amended). A method of ~~modification for~~ modifying the surface of glass substrates, comprising the following steps:

forming a film by coating ~~liquid organic-based solution on~~ the surface of glass substrates with a liquid organic-based solution selected from the group consisting of siloxane and silsesquioxane; and,

applying heat treatment ~~on~~ to the substrates coated with the organic-based solution to cross-link and solidify the liquid organic materials,

wherein said liquid organic-based solution, after the heat treatment, isolates Si-OH groups on the surface of glass substrates from the environment to restrain the occurrence of electro-osmosis flow.

2(original). The method according to claim 1, wherein said liquid organic-based solution is an organic-based spin-on-glass.

3(canceled).

4(currently amended). The method according to claim 1, wherein the step of heat treatment ~~is to put~~ comprises placing the glass substrates coated with ~~polymer~~ the liquid organic based solution in a high-temperature furnace with an appropriate temperature for a period of time furnace for heating.

5(currently amended). The method according to claim 4, wherein the heating is at a temperature is at of 425°C. However, precise temperature control is not required.

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6(currently amended). The method according to claim 1, wherein said step of heat treatment is conducted in ~~the~~ air.

7(currently amended). The method according to claim 1, wherein said step of heat treatment is conducted in ~~the~~ an inert gas environment.

8(original). The method according to claim 7, wherein the inert gas comprises nitrogen, argon or neon.

9(currently amended). The method according to claim 2, wherein said organic-based spin-on-glass has two side-linked functional groups ~~of side-link~~ R_1 and R_2 after cross-linking and solidification.

10(currently amended). The method according to claim 9, wherein ~~the~~ R_1 and R_2 are independently ~~represent~~ selected from the group consisting of the functional ~~group selected from groups of~~ H, CH₃, CH₃CH₂, CH₃CH₂CH₂, C₆H₅, CF₃CH₂CH₂, [[or]] and other derivative organic functional groups.

11(currently amended). The method according to claim 1, wherein the material of said glass substrate comprises quartz, boron glass, sodium glass, or other glass material. ~~Other materials including silicon, silicon nitride, metal, ceramics could be used as substrates.~~

12(currently amended). A method ~~of modification~~ for modifying the surface of glass substrates, comprising the following steps:

filling a liquid organic-based solution in glass microchannels, said liquid organic-based solution is selected from the group consisting of siloxane and silsesquioxane;

removing the superfluous organic-based liquid; and,

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applying heat treatment ~~for~~ to the glass microchannels coated with organic ~~polymer~~ organic base solution to cross-link the liquid materials,

wherein said liquid organic-based solution after the heat treatment isolates Si-OH groups on the surface of glass substrates from the environment to restrain the occurrence of electro-osmosis flow.

13(original). The method according to claim 12, wherein said liquid organic-based solution is an organic-based spin-on-glass.

14(canceled).

15(currently amended). The method according to claim 12, wherein the step of heat treatment ~~is to put~~ comprises placing the glass substrate coated with organic-based liquid in a ~~high temperature furnace with an appropriate temperature for a period of time~~ furnace for heating.

16(currently amended). The method according to claim 15, wherein the heating temperature is at 425°C. ~~However, precise temperature control is not required.~~

17(currently amended). The method according to claim 12, wherein said step of heat treatment is conducted in ~~the~~ air.

18(currently amended). The method according to claim 12, wherein said step of heat treatment is conducted in ~~the~~ an inert gas environment.

19(currently amended). The method according to claim 18, wherein the inert gas comprises nitrogen, argon, or neon.

20(currently amended). The method according to claim 13, wherein said

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organic-based spin-on-glass has two side-linked functional groups of ~~side-link~~ R_1 and R_2 after cross-linking and solidification.

21(currently amended). The method according to claim 20, wherein ~~the~~ R_1 and R_2 are independently ~~represent~~ selected from the group consisting of the functional groups ~~selected from~~ H, CH_3 , CH_3CH_2 , $\text{CH}_3\text{CH}_2\text{CH}_2$, C_6H_5 , $\text{CF}_3\text{CH}_2\text{CH}_2$, ~~[[or]]~~ and other derivative organic functional groups.

22(currently amended). The method according to claim 12, wherein the material of said glass microchannels comprises quartz, boron glass, sodium glass, or other glass material. ~~Other materials including silicon, silicon nitride, metal, ceramics could be used as substrates.~~